GAS JOURNAL

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AREA STAFF CONFERENCE

THE gas industry has been nationalised long enough to enable those who have served it under both the old structure and the new to strike a balance of gains and losses that have resulted from the 'great experiment'. It cannot be denied that, particularly in the smaller undertakings, there has been a loss of that personal relationship which made so many of them 'family concerns'; neither can there be any doubt that to the younger men in the industry the parallel processes of centralisation and decentralisation have opened up wider prospects of advancement. Despite the good attendances and the generally helpful atmosphere at the meetings of the district associations of gas engineers and managers the members were individualistic before vesting day; to-day they are being brought increasingly into touch with each other and are constantly cultivating a new team spirit. Company and gas committee meetings as we knew them before nationalisation have gone for good. The meetings of the Gas Council and the area boards— at any rate in the present formative stage— are not open to the Press, but through the gas consultative councils and, we are glad to say, in many instances, the officials at all levels who are recovering from the first impact of nationalisation and are realising their freedom to talk and write (within the limits of area board policy) we are to-day hearing more about the industry than ever before.

There is now to be added to the credit side of the account the area staff conference. Mr. H. F. H. Jones was right in claiming at the Skegness meeting that the East Midlands Gas Board was the first in England to recognise and meet the need for such a conference—with conspicuous success—though as a matter of fact the Wales Gas Board has lately held the third of its 'staff colleges' or conferences of group chairmen and conveners. Although the Skegness meeting programme included a dinner-dance and a day of golf the agenda represented a good square meal of sound common sense, starting with words of wisdom from the Chairman and Deputy Chairman and ending with an extremely useful 'question time' at which we were privileged to be present although the questions and answers were 'off the record'. The reason for holding the conference was to give officers the chance of seeing each other, talking to each other, and getting to know each other. As Mr. Jones rightly said, if we know what the man at the other end of the telephone looks like, half our difficulties are solved, because we are confident that however different opinions may be, both are doing their best for the work in hand. It seems that the worst is over in the matter of answering questionnaires. The Chairman knows well what an immense amount of work this has meant for many people, and especially the local manager and the staffs at divisions and sub-divisions, through whom and by whom much of the work had to be done. Although there is still much to do the East Midlands area has achieved a degree of organisation far in advance of what was thought possible a year ago.

Four papers were presented during the Skegness conference, two at divisional level and two at undertaking level, covering main-laying, modern district organisation, divisional organisation, and the problems involved in reorganising a small works: and so fully did the staff take advantage of freedom of speech that despite strict timekeeping the Chairman had to allow certain of the sessions to go on much longer than originally arranged. In closing the conference Mr. Jones paraphrased a well-known Shakespearian passage:

> 'To be or not to be; that is the question;
> Whether 't is nobler in the mind to suffer
> The slings and arrows of the local managers
> Or to take conference against a sea of troubles
> And by discussion end them'.

Although, as we have said, there was 100% concentration on the business sessions of the conference the social side was not neglected, and the dinner was notable for the speech by Mr. Alfred Robens, Parliamentary Secretary of the Ministry of Fuel and Power, who congratulated the industry on having the best nationalisation Act of any for which he had been in any way responsible, the area boards being autonomous units able to get about their job without reference to anybody else. They had in the new set-up great opportunities for enormous development, but he laid stress on service, quality, and price as the standards by which the industry would be judged by the housewife and the industrial consumer. The chairmen of the local division of the National Coal Board and the local Electricity Board were among the guests who heard Mr. Robens say he had met no body of people who had impressed him more than those in the gas industry, and wish them success in their competition with the other fuel industries.

A CHANGING STRUCTURE

THE address which Mr. C. H. Chester, President of the Institution of Gas Engineers and Chairman of the South Western Gas Board, gave recently to the North of England Gas Managers' Association had point in dealing with the problems, real or imagined, of the personnel of the nationalised gas industry who prior to vesting date were engineers and managers of the small undertakings. Mr. Chester concentrated on the problems which have arisen, or are likely to arise, at sub-divisional and at unit level. At unit level the problems fall into two groups—short-term and long-term. The first group concerns those whose works are not likely to be closed down during the working life of the personnel concerned; the second affects those whose works have become redundant, or will become so in the near future, as a result of integration. In some cases people who were to an extent a law unto themselves find their autonomy diminished and harbour resentment. Mr. Chester has a great deal of experience in the integration —the successful integration—of small works, and his views carry weight. Apart from this, he has always shown himself to be sympathetic in a thoroughly practical way with the problems of the engineers and managers of small works; and in his view their loss of status is imaginary and not real. 'Their new positions, as members of a team, are just as important, often more so. . . The fact that certain decisions now have to be taken in conjunction with other officials should be helpful rather than otherwise.' In the past the duties of the small works managers have been so numerous that in most cases certain aspects of the work have had to suffer. This applies particularly to distribution and consumer service. It is a question of adjustment of outlook and abandonment of the counsel of despair and the dwelling on the negative side of the change. Plenty of opportunities offer themselves.

Integration and the closing down of many small works was forecast and recommended long before nationalisation of the gas industry; and, in fact, integration, within limit, was being effected during the pre-nationalisation days. The Gas Act of 1948 certainly accelerated the advent of the problems which Mr. Chester discussed; it added impetus to the trend by removing barriers to area gas supply. And we would call attention to our report of a recent meeting of the South Western Gas Consultative Council which appears later in this issue of the *Journal*. At that meeting it was stated that full integration schemes of the South Western Gas Board were likely to take 15 years to achieve; and that of the 121 gas producing units taken over by the board about 70—more than half—were inefficient and out of date. These will be closed down under the integration schemes. The closing-down rate at present is 11 a year. The problem is, of course, peculiar to the South Western area. But there are over-riding factors which should be borne in mind. The gas industry is in the process—we almost said the 'throes'—of great development. It is a large and an expanding industry within which there is a constant flux of personnel. And we believe that this expansion will offer hitherto unknown scope for those on the distribution and service sides and that an altered structure of the industry will attract competent and ambitious technical personnel to its ranks.

METHANE GAS

EVERY year untold millions of cubic feet of methane gas are discharged into Britain's atmosphere through colliery ventilating fans. Mr. John Roberts, writing in a recent issue of *Colliery Engineering*, contends that it might be possible to utilise this waste gas as fuel for boilers or gas turbines, the surplus going to gasworks. He refers to a paper at a meeting of mining engineers in 1948 in which it was stated that the quantity of methane given off from one seam of the Windsor colliery in South Wales amounted to 4,500 cu.ft. per ton of coal brought up the shaft. With an output of 1,440 tons of coal per day, the gas emission from this one colliery represents 4,500 cu.ft. per minute exhausted through the ventilating fan. From the thermal standpoint, taking 1,000 B.Th.U. per cu.ft. as the thermal value of methane, this emission equals 4½ mill. B.Th.U., or 45 therms per ton, per minute, or 64,800 therms per day. The author concludes that these figures represent the capacity of a gasworks carbonising over 900 tons of coal per day. Hence, he says, 'the gas escaping from one single large Welsh steam coal colliery is equal to the whole of the gas manufactured at a gasworks large enough for a town of half a million.' Windsor colliery, he emphasises, is by no means exceptional in this respect.

More practically, the article sets out ways and means by which the gas can be used. The gas industry, for example, might, he suggests, produce low-grade gas if an ample supply of cheap methane were available to raise the calorific value to 450 B.Th.U. This would require a careful consideration of the resultant specific gravity, but the article refers to certain gas-making processes, such as the Jones process, which produce gas of high hydrogen content, the use of a good proportion of which could ensure that the gas had a not too high specific gravity. Recent gas turbine developments are also mentioned, which might facilitate the generation of a cheap supply of electricity from methane.

Mr. Roberts asks: 'Is it beyond the ingenuity of British engineers to devise means of tapping the gas by boring holes in advance of the working faces?' In particular, he believes that the modern method of horizon mining, to be introduced at the Nantgarw colliery, is unusually suitable for such a process of degasifying. From an entirely different source, the National Coal Board journal, *Coal*, we learn that the Board's scientists, in association with the Ministry of Fuel and Power, are engaged on research in this respect which may lead to 'revolutionary developments in the years ahead.'

DECENTRALISED PURCHASING

WE were interested in the comments of Mr. N. F. Marsh, of the East Midlands Electricity Board, at the E.D.A. Sales Management Conference this month on the matter of purchase of appliances. Purchasing should, he considers, be decentralised to district or even service centre managerial level. Centralised purchasing, he maintains, tends to restrict the consumer's choice, and over-riding decisions from remote offices may well result in a lowering of consumer service standards and an increase in dead stocks. 'Type tests' are, he thinks, unnecessary, nor do managers of service centres really require reports on performance to decide whether it meets the needs of their own consumers. Mr. Marsh made it clear that his argument in this regard did not refer to new apparatus of unconventional or improved designs.

UNDERGROUND GASIFICATION

THE preparatory stage in the experiments on the underground gasification of coal which are being carried out by the Ministry of Fuel and Power at Newman Spinney, Derbyshire—which experiments have been recorded in the *Journal*—came nearer to a conclusion on Monday last when an effort was made (for the first time in this country) to produce combustible gas from a coal seam underground. An attempt was then made to effect ignition. As we go to press the results are not yet available; but it should be mentioned that the attempt at ignition was in itself in the nature of an experiment, and that in any case it will be a matter of weeks before the results in the production of gas can be assessed. Immediate results which may emerge cannot in fact demonstrate the practical value of underground gasification as a means of exploiting coal resources which cannot be brought into use at present.

Letters to the Editor

'Operation Effluent'

DEAR SIR,—I have read with interest Mr. Wedgwood's paper entitled 'Operation Effluent' presented to the Eastern Association of Gas Engineers and Managers recently, but there are one or two points on which I must cross swords with the author—in fact, I feel sure he will be expecting such an attack, and I should be glad if you could afford me the facilities of your *Journal* for this purpose.

Firstly, with reference to hot gas detarring, the author's remarks are somewhat puzzling to me, and prompt me to enquire at what works he obtained his experience of this practice. May I be permitted, here, to remind him that the function of removing all tar while the gas is hot and the ammonia still in gaseous form is to eliminate the higher tar acids from the resultant liquor. These tar acids present the greatest difficulty in oxidation at the sewage works, and are also the colour-forming bodies. The phenols, thiocyanates, and thiosulphates are quite easily oxidised concurrently with domestic sewage, and so we have, under hot gas detarring conditions, an effluent which is readily oxidisable and, moreover, which can be accepted into the sewers in much larger quantities than would be the case if the higher tar acids were present. As an example, I would quote one local authority in the West Midlands that is taking 1.5% of the D.W.F. as still effluent and maintaining a satisfactory final outfall.

Mr. Wedgwood asks: 'Is any real benefit derived from hot gas detarring in gasworks equipped with conventional condensing and ammonia extraction plant?' Having been in charge of Hinckley works with hot gas detarring for the past 16 years, my answer is very definite—there are very many advantages, the full value of which can only be appreciated in practice.

It is true that the resultant O/A of the liquor is higher than under normal conditions, but not true to say that present proposals for payment for effluent disposal are based on O/A figures. A limited number of disposal agreements have been so based, but I envisage that in the very near future present research will establish more scientific methods of charge, and the O/A basis, which the author admits 'is not an absolute indication of the amount of work to be done at the sewage works,' will become extinct.

Secondly, the author refers to various reports of the I.G.E. Effluents Sub-Committee, with reference to Coventry. This work is now almost 20 years old, and I fail to see what connection a cyclone tar extractor has to an electrostatic hot gas detarrer, except that in this case the removal of *some* of the tar in the hot stream did effect results indicating the advantage of hot gas detarring. Nevertheless, it is unfortunate that the figures produced should be used in an effort to show hot gas detarring as a practice of little value when the reverse is the case.

I must agree with the author's contention that 'spent liquor of reasonable quality is not a difficult thing to treat in a normally efficient sewage treatment works,' but what does he call a spent liquor of reasonable quality, and how often do we meet such an effluent in these days of continuous vertical retorts? Then again, where are the 'normally efficient' sewage treatment works, when excessive quantities of all types of trade wastes are discharged indiscriminately and efficiencies, which may otherwise be normal, seriously impaired. Unfortunately, there are too many unknown factors present which upset this theory. Hence our present disposal difficulties; and with the modern trend to concentrate gas production to fewer but larger units the problem will become more acute.

Thirdly, Hinckley. Dr. Monkhouse in the fifth report of the I.G.E. Effluents Committee should not have stated '1.4 gal. of *tar*,' but 'light oil.' This was with an experimental detarrer in operation. The average quantity of light oil at condensers is 1.7 gal. per ton of a specific gravity of 0.934. It will certainly float on the liquor in the same way that liquor will float on tar, but provision is made for separation at the condenser seal pots, and the oil is stored separately. I fail to see why the author mentions this very elementary practical point.

The analysis given on page 16 of Mr. Badger's 'Liquor Survey' represents all the liquor produced, with the exception of 2 to 3 gal. per ton from the retort house circulatory system, which latter is disposed of to local farmers as a liquid fertiliser. Yes, Mr. Wedgwood, the thiocyanate, thiosulphate and polyhydric phenols are low, indicating just a mere few of the advantages of hot gas detarring.

Finally, 'O/A residue.' The author asks if this, which Dr. Key attributes to higher tar acids, persisted at Hinckley. It certainly does not, and for the very reason that the higher tar acids present in the effluent are negligible.

I agree with the author that those last couple of units of O/A or B.O.D. are only a very small fraction of the whole, but at the same time they are the two 'finalists' which cause all the trouble, and about which the Royal Commission on Sewage Disposal showed the greatest interest. We shall no doubt, in the future, be hearing more of them, and much more, too.

Yours faithfully,

Gasworks, Hinckley. A. B. BRITTON,
May 19, 1950. Engineer and Manager.

B.I.F. 1950

DEAR SIR,—While not disagreeing in any way with your comments on the British Industries Fair at Castle Bromwich, I cannot help comparing this year's show with the great days of old. In those days, when the Fair was held in February, the Gas Exhibit occupied a commanding position in the Fair, not only geographically—it was staged right in the middle of the vast hall, not at the far end—but thermally. It was generally the only warm spot in the place. The change to a May show has robbed the gas industry stand of a great strategical advantage.

Of course, there are other differences. In those early years a Gas Conference prompted by the B.C.G.A. was an important event. Manufacturers of plant and appliances were out not only to impress the overseas buyer but to show their wares to their clients at home. It was something of an annual Gas Exhibition. Today the emphasis is much more on the export trade, and from this point of view Castle Bromwich has been successful. But one wonders whether the gas industry itself achieved success. It must be admitted that in comparison with the electrical industry it had lost its place—it was not nearly so conspicuous. Here one must recognise that the Gas Council and its constituent area boards were not this year in the mood for exhibitions. They are, rightly, preoccupied with their immense task of organisation and development within the industry. But should they not, very soon, get down to the consideration whether next year they should make an effort to recapture their rightful position at Castle Bromwich?

That position will not be the same as it was in the 'thirties. Even the manufacturers of plant and appliances may not see their way to any big, profitable departure from what they did this year. But could not the industry as a whole stage a really adequate and effective demonstration of the part played by gas in the manufacturing processes of the export trades? Such a demonstration would have to be under the ægis of the Gas Council, supported by the area boards most interested in the export trades and supported too by the manufacturers of the appliances used. One imagines quite a big stand with many types of gas-fired furnaces, heat treatment, metal melting—there is the tunnel kiln now grown so strong in pottery—infra-red drying, &c. All these should be shown full scale or large model in size with drawings, graphs, photographs, posters, proclaiming the contribution made by gas to all the big industries, themselves making mostly for exports—motor vehicles, machine tools, pottery, and all sorts of things.

The outstanding point is that if this exhibit is to be undertaken it must be carried out on a really imposing scale so that no-one entering the Fair should ask, as we did (having not yet looked in the catalogue), 'Now, where is Gas?'

May 20, 1950. J.J.C.B.B.

Personal

Mr. **G. F. Kelly** has been appointed Group Sales Manager for Metropolitan Gas Meters, Ltd., and its subsidiaries.

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Mr. **E. Annakin,** Distribution Superintendent, Harrogate, undertaking, has been appointed Distribution Engineer with the Rhymney and Aber undertaking of the Wales Gas Board. He takes up his new appointment on June 1.

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Mr. **W. F. G. Sutcliffe** has been appointed Joint Managing Director, and Mr. **J. D. Sutcliffe,** Sales Director, of Richard Sutcliffe, Ltd. These appointments are consequent on the death of Mr. T. D. Sutcliffe, Joint Managing Director, recently announced in the *Journal*.

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Miss **Mary Strong,** Home Service Consultant, will leave the Newcastle Division of the Northern Gas Board to take up a post on July 1 with the Cumberland Group as Sales Manager. The Group comprises the Carlisle, Workington, and Penrith Divisions.

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Mr. **P. G. Wright,** Acting Assistant General Manager of the Uxbridge District of the North Thames Gas Board, has been elected a member of Eton Rural District Council which covers the wide area around Slough bounded by Uxbridge, Gerrards Cross, Maidenhead, and Windsor.

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Mr. **P. H. Daniel,** for over 30 years Northern Representative of Wm. Whitehouse & Co., Ltd., has been made a Director of the Company. Mr. **V. J. Shakeshaft,** who was Representative for the Midlands and South Coast for 25 years, has also joined the Board in recognition of his 32 years of service.

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Mr. **Edwin Naylor,** Assistant Distribution Superintendent in the sales and service section of the Woodborough Road depôt of the Nottingham gas undertaking, retired on May 16, his 65th birthday, and in recognition of his 32 years' service with the undertaking was presented with a gold wrist watch by Mr. H. B. Taylor, Manager of the Nottingham Sub-Division of the East Midlands Gas Board.

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Mr. **E. J. Perks,** Midlands Manager of Ascot Gas Water Heaters, Ltd., is still in North America. He left this country on January 24 for an anticipated stay of three months, to progress the company's market developments, also making contact with the principal gas utilities and approval authorities. His success has been such that the decision has been made to extend his stay by a further three months to enable him to complete an extensive itinerary.

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Dr. **W. H. Brindley, M.C.**—The Court of Governors of Manchester University has approved the recommendation of the Senate and Council for the conferment of the honorary degree of M.Sc. on Dr. W. H. Brindley, M.C., for industrial and public services. Dr. Brindley, who is Librarian to Hardman and Holden, Ltd., Manchester, has been Hon. Secretary and Treasurer of the Manchester Section of the Society of Chemical Industry since the retirement of the late Mr. Andrew McCulloch from that office in 1934.

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Mr. **Wilfred Illingworth Ineson,** Chief Chemist, and Mr. **Frederick Jenning Wadsworth,** relief shift engineer and general assistant, at the Birkshall gasworks, Bradford, have received the award of the King's Commendations. This is the sequel to the rescue in February by these men, at personal risk, of Mr. Herbert Horsfield, junior clerk of works, from a pit 5 ft. below ground level in which he had become overcome by gas fumes. He unfortunately died later from the effect of the fumes. Mr. Wadsworth was himself slightly gassed and had to receive treatment at Bradford Royal Infirmary. At a meeting of the North Eastern Gas Board, Mr. Ineson and Mr. Wadsworth were presented with a testimonial enclosed in a leather case, which placed on record the board's 'high appreciation of their courage and resolute action.' The gallant attempt, it added, 'once again marks the high standard of conduct in keeping with the best traditions of the gas industry.'

Obituary

Mr. **Henry John Chesney Johnston,** Chairman of the Leeds Fireclay Company, Ltd., has died at his London home at the age of 74.

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Mr. **Albert Ashton Whitney,** who for the past 26 years had been Distribution Superintendent at Doncaster gasworks and had spent all his working life there, died on May 15 at the age of 56.

Diary

May 25.—North Thames Gas Consultative Council: St. Ermin's Hotel, Westminster, S.W.1. 2.30 p.m.

May 25.—Midland Association of Gas Engineers and Managers: Annual and Spring Meeting, Leicester. Business Meeting and Luncheon, Grand Hotel, 11 a.m. Visit to Aylestone Road Works, 3 p.m.

May 26.—Northern Junior Gas Association: Visit to Howdon Works, Howdon-on-Tyne, 2.30 p.m.

May 27.—London and Southern Junior Gas Association: Visit to Mogden Sewage Purification Works, Isleworth.

May 30.—Southern Association of Gas Engineers and Managers (Eastern District): County Meeting. Luncheon at Town Hall, Catford, 12.30, followed by visit to Sydenham Works of the South Eastern Gas Board.

May 31.—Eastern Junior Gas Association: Annual General Meeting and visit to Bedford Gasworks.

June 2.—London and Southern Junior Gas Association: Annual General Meeting. Lecture Theatre, 178/180, Edgware Road, W.2. 7 p.m.

June 5-9.—Institution of Gas Engineers: Annual General Meeting, Bournemouth. For detailed programme see *Journal* of May 10 (p. 369).

June 6.—Gas Engineers' National Guild.—Annual General Meeting, Town Hall, Bournemouth, 5.15 p.m.

June 10.—Scottish Junior Gas Association (Eastern District): Annual Outing, Galashiels.

June 12.—N.A.L.G.O. Gas Members: Conference, Eastbourne, 9.30 a.m.

June 14.—Southern Gas Consultative Council.—Grand Hotel, Fir Vale Road, Bournemouth, 11 a.m.

June 14.—Manchester District Junior Association of Gas Engineers: Ladies' Day. Visit to the works of the Derbyshire Silica Fire Brick Company.

June 14.—National Benzole Association: Annual General Meeting. Wellington House, Buckingham Gate, S.W.1. 3.45 p.m.

June 15.—Midland Junior Gas Association: Ladies' Day.

June 24.—London and Southern Junior Gas Association: Summer Visit and Ladies' Day, Brighton.

June 24.—Western Junior Gas Association: Summer Meeting and Ladies' Day, Bath.

June 24.—Wales and Monmouthshire Junior Gas Association: Ladies' Day, Weston and Cheddar.

June 30.—Northern Junior Gas Association: Annual General Meeting, West Hartlepool.

June 30.—Waverley Association of Gas Managers: Annual Meeting, Edinburgh.

July 14.—South Western Gas Consultative Council: Meeting, Taunton, 11 a.m.

July 17.—Eastern Gas Consultative Council: Connaught Rooms, Great Queen Street, W.C.2. 2 p.m.

Sept. 5-7.—Irish Gas Association: Annual Meeting, Limerick.

The attention of members of the Institution of Gas Engineers is drawn to an exhibition of railway civil engineering at the Institution of Civil Engineers, Great George Street, London, S.W.1, from May 24 to June 3. The exhibition will be open on weekdays from 10 a.m. to 6 p.m., including Whit Monday (Tuesdays and Thursdays, 10 a.m. to 8 p.m.). Admission free.

Inefficient and Out-of-Date Works

Link-up Problems in the South West

THE fourth meeting of the South Western Gas Consultative Council was held at Taunton on May 3, under the Chairmanship of Councillor A. W. Loveys, J.P. In his report on the recent activities of the South Western Gas Board, the **Chairman** said that the board had been confronted with the prospects of heavy financial liabilities arising from the decision of the Minister of Transport to approve an increase of 16⅔% in railway freight charges and from a national agreement which would increase the wages of labourers in the gas industry from April 16. The additional freight costs were likely to cost the board over £230,000 a year and wages increases might increase that sum to £500,000 a year. As to the cost of carriage of coal, Mr. Loveys pointed out that the South Western area was perhaps the most hard hit of any area as it was the furthest from the main coal producing centres.

The board would do its best to minimise the effect of these financial burdens. Hopes of being successful in this lay chiefly in schemes of integration which were being pursued throughout the area. The smaller, inefficient, and inadequate works were being closed down and gas was being supplied from the larger and more up-to-date works.

Mr. Loveys referred to the integrating schemes of Exmouth and Exeter, already accomplished, Tiverton also with Exeter and Buckfastleigh and Ashburton with Torquay, which were progressing, as examples of what was being done. There were factors that limited the speed with which the board could proceed on integration schemes, two important ones being shortage of essential materials and an over-riding financial limit of expenditure in certain respects fixed by the Minister of Fuel and Power.

Integration Schemes

Questions were answered by Mr. Loveys and Mr. L. P. Ingram, Deputy Manager. It was emphasised that the full integration schemes of the board were likely to take 15 years to achieve. At present inefficient producing centres were being closed down at the rate of 11 a year. Materials now being delivered for this work were, for the most part, those ordered prior to the gas board taking over. Of the 121 gas producing units taken over by the board about 70 were inefficient and out-of-date and it was these that would be closed down under the integration schemes. In these circumstances it was inevitable that the area would not compare favourably with those which were more compact geographically and that had taken over fewer and more efficient gas producing plants.

As to the workers in the industry, redundancy ought not to be a problem as where they left through ordinary causes such as retirement, other jobs, &c., they would not be replaced.

Questioned as to the effects on administration of the centralising policy of the board the Chairman said that the sub-divisional managers were given fairly wide powers. Following the closing down of local works some staff were brought to the main offices of the sub-division. This centralisation had effected economies for the administrative staffs had been reduced.

As to the financial effects of the recent increase in wages, Mr. **Ingram** said it was impossible to assess yet the ultimate cost as there might be increases also to other grades of workers. A special meeting of the board would be held to consider the financial position.

Gas Price and Quality

Representations had been made to the board about recent increases in the price of gas by the Alcester R.D.C., Buckfastleigh U.D.C., Dawlish U.D.C., Seaton U.D.C., Watchet U.D.C., and Tetbury R.D.C.

A complaint by the Langport R.D.C. as to the quality of the gas at Somerton and Long Sutton was answered by Mr. **Ingram,** who said there had been major breakdowns at the Somerton works. Many mains had now been replaced at a considerable cost and the supply position was reasonably satisfactory. One indication that this was so was the subsequent high figures of cooker sales. As to Long Sutton, the main from Langport went alongside the river for three quarters of a mile and as the river bank shifted so did the main which was often half blocked with water. New mains would be laid and then the trouble would be cured.

The council had been approached by a baker in the Teignmouth district who was considering using gas instead of solid fuel and wished to know if special rates to the baking trade would be available. The **Chairman** said the Board regarded that sort of load as most desirable and economical and in fixing the new industrial tariffs it would receive first consideration. The enquirer had been visited by a board official who had been helpful in giving technical advice on the conversion of the ovens. The board had received direct a number of enquiries from bakers throughout the area as to the facilities available and the board hoped to expand considerably the sale of gas for this particular purpose.

A member of the council complained of the board's policy in relation to the laying of mains for new housing estates. He said that at Glastonbury the previous practice of taking the mains behind the houses had been dropped and the mains were now laid in the public highway. This led to greatly increased costs as greater lengths of mains were necessary on originally laying, and subsequent servicing was more expensive.

Mr. Ingram said it was not necessarily the case that the original cost would be greater under the board's present policy. There were also other factors to take into account, one being the convenience of the tenants of the houses. They did not favour the digging up of a laid out garden for the purpose of getting to a leaking main. The board had the right of access to mains in the roadway. As to the costs in this particular instance they amounted to £20 per house but the board were only making a charge of £5 10s. a house for mains, services and internal piping.

Reference was made to differences of practice between local authorities as to the facilities offered for the servicing of new houses with gas. The view was expressed that it was desirable to lay gas to every house, as, apart from allowing a tenant a choice between gas and electricity, it tended to increase the competition between those two services.

The council then passed a resolution recommending the board to take all possible steps to afford tenants of council houses freedom of choice between gas and electricity and to maintain the closest relations with the local authorities.

Special Contracts

Yeovil Borough Council had renewed representations about the price of gas since the recent increase was announced. Their case was based on the condition of the works and the financial position of the Yeovil undertaking at vesting date. An answer had been given direct by the board and all the correspondence was put before the consultative council.

With regard to special contracts the council was of the opinion that these had some bearing on tariffs generally and decided to seek from the board more information than was at present available.

A review of the work of the council from its inception to March 31 had been embodied in a draft annual report. The draft was approved without amendment and authorisation was given for its submission to the board for inclusion in the annual report that that body would make to the Minister of Fuel and Power. Subsequently the report would be laid before each House of Parliament.

The Council decided to hold its next meeting at 11 a.m. on Wednesday, July 19 at Taunton.

Coal Output.—Total coal production during the week ended May 13 increased from 4,217,700 tons in the previous week to 4,388,300. Manpower in the mines fell by 600 in the week ended May 6 to 701,000, including the loss of 200 face workers. Gas available at gasworks during the week ended May 7 totalled 10,226.6 mill. cu.ft., against 10,948.4 mill. in the week before. Electricity sent out for public supply decreased from 926.9 mill. to 893.6 mill. units over the same period.

Coal Tar Research

ON May 12 the Rt. Hon. Sir John Anderson, G.C.B., G.C.S.I., G.C.I.E., F.R.S., officially opened the Laboratories of the Coal Tar Research Association at Gomersal, near Leeds. The gathering included many eminent people representing the tar and chemical industries, the National Coal Board, the gas and coke oven industries, and several allied research and scientific organisations. By performing the simple but symbolic act of igniting a bunsen burner, Sir John declared the Research Station well and truly open, after which Dr. E. V. Evans, O.B.E., President of the Coal Tar Research Association, asked him to accept a silver salver and match box as a memento of the occasion.

It was in 1944 that proposals were put forward by the Association of Tar Distillers for a central research organisation. At that time the British Tar Confederation, comprising both producers and distillers, was in process of formation, and it was felt wise to wait until the Confederation was in a position to sponsor such an organisation. The setting-up of the National Coal Board delayed matters, and though the first meeting of the provisional council, at which Dr. E. V. Evans was elected President and Mr. R. B. Robinson, Chairman, was held in June, 1946, it was not till November, 1947, that practical steps towards the formation of the Coal Tar Research Association became possible. The Council was formed in July, 1948, and included representatives of tar distillers, producers of gasworks and coke oven tar, and the N.C.B. Approach to the D.S.I.R. for recognition of an association qualifying for a grant was successful. With a grant of £18,200 from the D.S.I.R., income of the association during the first year of its existence was £48,400.

Organic Laboratory

Search for suitable premises was first concentrated on the Home Counties, but the D.S.I.R. foresaw difficulty and delay and the Council decided to investigate the Leeds area. One of the first duties of the Director of Research, Dr. D. McNeil, was to conduct this search, and though not ideal, the Union Mills, Gomersal, in possession of the Ministry of Supply, was considered suitable. Plans and specifications were drawn up on a utilitarian basis and the Research Station was completed by the end of 1949, by which time a staff of 55, including 16 graduate chemists and 18 assistants, had been recruited.

The premises consist of a single-storey building with a floor area of 24,500 sq. ft., together with an adjoining two-storey building containing 7,000 sq. ft. floor area. There are also storage buildings and three cottages on the 6½-acre site.

The Coal Tar Research Association was a new venture without existing apparatus or plant and without the research background which would enable 'tailor-made' laboratories to be designed. Since it was clear that, at the outset, work would be mainly on the laboratory scale and would include organic research, physical chemical research, and some catalytic work, it was decided to make the facilities as generally useful as possible and also to ensure that subsequent alterations would entail the minimum of labour.

The upper storey of the two storey building has been divided into eight offices, the library, a conference room, and a dining room; the original kitchen has been retained. Part of the lower storey houses the stores and the glass blower's workshop. The laboratories consist of six main laboratories and two smaller laboratories, a balance room, an autoclave block house, and offices for the four section leaders. Space has also been provided for semi-technical plant where the need for this arises and a fully-equipped workshop has been set up in another part of the building. The total area of the laboratories and workshops is 14,500 sq. ft., leaving approximately 10,000 sq. ft. for extension as work demands and circumstances permit.

After the tour of inspection was completed, the company left for Leeds, where they were the guests of the Coal Tar Research Association at luncheon in the Queen's Hotel.

Speaking at this function, Dr. **E. V. Evans,** O.B.E., President of the Association, said: 'This is a day which will make history in the coal tar industry. I do not propose to make any set or formal speech, but as you have done me the honour of making me your President, it is my duty to say such things as I introduce our chief guest, Sir John Anderson, to speak to you. If Sir John was to ask me what are the objects of our Association, I would say that they were to improve our understanding of chemistry and physics and to widen the scope, range, and usefulness of the products of coal tar. The Association is a tripartite body, because it is formed by producers of tar, town gas producers, coke oven gas producers, and the Association of Tar Distillers; but that was in the beginning. Since the nationalisation of the coal industry a very large proportion of the coke ovens has gone under the control of the N.C.B. and we have become a quadtripartite body, and perhaps I could go further and say that as we receive an appreciable sum of money from the D.S.I.R. and they send representatives to our Council, that we are really a quinquepartite body. The prime movers in the institution of this research association were really the Association of Tar Distillers.'

Help from All Parties

'We have,' continued Dr. Evans, 'received much help and encouragement from all parties concerned, whether they be producers or distillers or the N.C.B. or the D.S.I.R. Notwithstanding this help, I am afraid we had to work a long time in getting the Association established. We are very fortunate indeed in having Mr. R. B. Robinson as the Chairman of the Council. In the Director, Dr. McNeil, we have an able and progressive young man. Our Secretary, Mr. P. V. Watkins, is a man who does not spare himself in giving us service. The Council and its advisory committees are constituted of men well established in the tar industry or in science, and they do most useful work.'

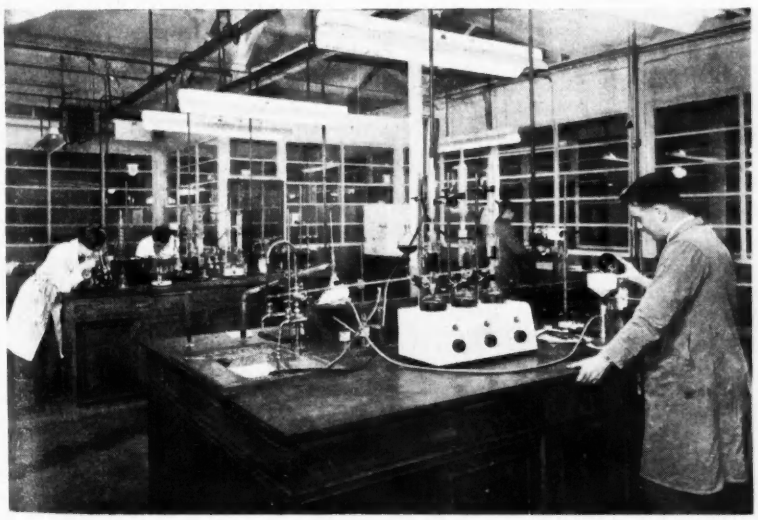
Replying, **Sir John Anderson** said he was pleased and proud at having been invited to inaugurate the laboratories of the Coal Tar Research Association. In science itself they were in no way backward; they had produced over a long period of years a number of men of science of outstanding quality, which no other country in the world had been able to excel, but curiously enough in the application of science to the ordinary

processes of industry they certainly had fallen dreadfully behind. Industry had, or thought it had, little use for science and the scientists, and the pure scientist was inclined to look down his nose at industry; so much so that when he was a young student at the beginning of this century and had to consider what he was going to do in order to earn a living, he came to the conclusion, after sober reflections, that there was little or no prospect ahead of him in the scientific field. At that time he was undoubtedly quite right. Where could a young chemist go except to school to teach young people, or to pursue a somewhat narrow road, an academic career. The only contemporary of his who went into industry at that time went into the brewing industry. That was the natural result of the recognition in other countries, particularly in Scandinavian countries and Germany, of the importance of science in the technique of brewing beer. His experience at Liepzig was that the professors there were all keenly interested in the practical application of science; none of them regarding it beneath their dignity to remove from the academic sphere to industry. Times had fortunately changed in this country, but it remained that, broadly speaking, the industries of the country fell into two categories, traditional industries which had been very slow to recognise the importance of science and to introduce scientifically trained men into their industry. He could not help thinking that coal tar belonged to the category of traditional industries and that it had been perhaps slower than some of the other industries to turn over to the type of new conceptions and to introduce science into the conduct of its affairs. Anyhow, better late than never, and he was perfectly sure that the coal tar industry had made a very good start in setting up this establishment. He felt proud to have the opportunity of inaugurating the laboratories because, as Lord President of the Council, he was responsible for the Department of Scientific and Industrial Research, and he was glad to say that Sir Ben Lockspeiser was present. He had been most interested in going over the laboratories, and the Director was to be very warmly congratulated on what he has found possible to do under adverse conditions of the present day towards equipping this establishment.

The Library

Mr. **R. B. Robinson** (Chairman, Coal Tar Research Association) said that Dr. Evans had referred to his efforts in the Association, but they did not amount to much. In the course of his duties he had had a very great deal of help from his friend, Mr. Bates, the Treasurer. He had offered advice on all manner of points, and altogether he had proved himself indispensable. He also wanted to endorse what Sir John Anderson had said about the efforts of Dr. McNeil. They were indebted to Mr. P. V. Watkins, Secretary, and to all his staff. Finally, he wished to refer to the point which Sir John Anderson made at the end of his review in which he traced the development of non-scientifically minded industry to the strength it was today. In the tar industry they all knew that they had unusual problems.

Unless the Association received from its members the interest and co-operation which were necessary to get its lifeblood circulating, it would eventually die of malnutrition. Their co-operation and interest were vital if it was going to be a success, but he believed it was within their power to make it a success.



Physical Chemistry Laboratory

New South Wales Statistics

We have received from the Department of Local Government, Gas Engineering Branch, Sydney, an analysis of production and distribution costs, and of selling prices, for the year ended December 31, 1948, relating to the 37 gas undertakings in New South Wales. The total comprises 22 municipal undertakings and 15 companies.

Although in some cases there were slight decreases in the quantity of gas made in 1948 compared with 1947, there was a general increase in gas sales. The largest undertaking is that of the Australian Gas Light Company, with a total make for 1948 of 12,839,184,000 cu.ft., compared with 12,313,598,000 cu.ft. in 1947, and sales amounting to 11,740,592,000 cu.ft. The Molong Corporation undertaking remains the smallest, with a total make of 4,747,000 cu.ft., against 3,630,000 cu.ft. in 1947, and sales amounting to 3,057,000 cu.ft. The former undertaking has 318,813 consumers and the latter only 200.

Coke was sold by the Australian Gas Light Company at 18.4s. per ton, the cheapest in the country; the dearest was 99.5s. per ton at Goulburn. The price of tar varied from 1.56d. per gal at Newcastle to 18.4d. at Yass.

The total gross expense into holders varied considerably between the 37 undertakings, the highest being 131.7d. per 1,000 cu.ft. at Hay, and the lowest 38.0d. at Newcastle.

Wales Juniors Meet at Porthcawl

Increased Membership and Higher Technical Standard

THE 25th annual general meeting of the Wales and Monmouthshire Junior Gas Association was held in the Grand Pavilion, Porthcawl, on April 25. The Association was welcomed to Porthcawl by Councillor Bowen, Chairman of the Porthcawl Urban District Council.

At the outset the chair was taken by Mr. K. Muir (Senior Vice-President), who read the Council's report and disclosed that the membership of the Association had again increased and was now 138. New applications for membership had been carefully scrutinised and the technical standard required for membership raised. A very successful session was reported. The report concluded with an expression of thanks to the Chairman of the Wales Gas Board and his colleagues, and to the engineers and managers of the various undertakings who had extended hospitality during the session. The Chairman of the Wales Gas Board had stated at the 24th annual meeting of the Association that the juniors would be free to run the Association as they desired. He had not only allowed this, but had allowed all his officers to be generous in the facilities granted to the Association.

The adoption of the report was formally proposed by Mr. Ivor Jenkins and seconded by Mr. A. H. Dwyer (Newport).

Financial Problems

The Treasurer's report was given by Mr. C. E. Banham, who explained that while the report showed a generally healthy position, there was another aspect. The balance in hand had again dropped and, with the annual commitments of the Association, the Association could not pay its way on its present income. The whole financial position was being carefully studied by the Council, and members would hear more about it later.

The Treasurer's report was adopted on the motion of Mr. R. J. K. Sheppard (Neath), seconded by Mr. Penfold (Birmingham).

The President, Mr. P. J. Wride, then proposed Mr. K. Muir, of Bridgend, as President for the next session. He spoke of Mr. Muir as a young man but an old member and well worthy of the office of President after the years of service he had given the Association.

Mr. Muir expressed his thanks for the honour conferred upon him.

Other offices were filled as follows:—

Senior Vice-President: S. G. Meade (Newport).
Junior Vice-President: C. L. Singleton (Chepstow).
Hon. Secretary: S. G. Meade (Newport).
Hon. Treasurer: C. E. Banham (Cardiff).
Hon. Librarian: I. Charles (Newport).
Hon. Auditors: W. E. Crowley and T. Noall (Cardiff).
Hon. Transactions Secretary: H. Buckley (Pontypool).

Messrs. D. I. Rowlands (Rhymney and Aber), R. J. K. Sheppard (Neath), and R. H. Hanford (Port Talbot) were elected to the vacancies on the Council.

Lubrication

On the conclusion of the business, the members were shown an instructive film by the Vacuum Oil Company on 'Lubrication.' The film dealt with the principles of lubrication and by magnified cross-sections showed the need to maintain an oil film between the two bearing surfaces, which, when magnified, appeared very rough. It went on to deal with the types of oil for various purposes, from heavy slow moving machinery to light fast moving machinery, and the lubrication of internal combustion engine cylinders.

After the film, a short discussion ensued. This was opened by Mr. **S. G. Meade,** who said that suitable oils had now been found to withstand the high temperatures in an I.C. engine cylinder. He wondered what was done to an oil to make it suitable for these conditions and wondered why detergents were also added.

Mr. **Williams** (Vacuum Oil Co.) stated that the additives were not divulged, but that many different additives were utilised for various reasons. He instanced the lead base additive used for gear lubricants where very high pressures occur due to line contact, producing a tendency to welding of tooth to tooth. The addition of a lead soap additive increased the film strength by many times.

Mr. **Hayman** (Vacuum Oil Co.) took up Mr. Meade's point to emphasise that detergent, anti-oxidant, and dispersive additives put into oils for I.C. engines use were not lubricating agents and did not improve the oil's film strength. Their function was to obviate the formation of carbon and lacquers and keep the engine clean.

Mr. **Meade** asked if it was necessary or advisable to add an upper cylinder lubricant and whether the detergent was added as a precaution against the cracking to carbon of the oil.

Mr. **Hayman** agreed that the oil would be cracked to carbon, and the detergent then determined that it did not stay in the cylinder or oilway.

Mr. **T. S. Ricketts** (Cardiff) asked if it would not be desirable to limit the number of grades of oil for I.C. engines.

Mr. **Williams** replied that most oil firms, when asked, would prepare a schedule of the grades of oil for use on all the plant. One grade would often cover many applications. This was recently done on one works to his knowledge and the number of grades was cut from 70 to 19. On the other hand, each grade had its own properties and he cited a case where the oil supplier had been asked to reduce the number of grades to four to fit in with the accountancy costing system. This was simply impossible if the plant was to be run efficiently and safely.

Mr. **Ricketts** said he knew of one case where 10 different grades had been quite successfully reduced to one.

Mr. **Ball** (Vacuum Oil Co.) agreed this was possible.

Mr. **Ricketts** asked if Mr. Ball did not think his company now made too many grades.

Mr. **Williams** did not think the oil companies made too many grades and felt that no works would need to employ all the grades. He assured the members that the oil companies were very reluctant to introduce a new grade and frequently it was the engine makers who specified an oil to a different specification, which necessitated introducing another grade.

In closing the discussion, the **President** thanked Mr. Williams, Mr. Ball, and Mr. Hayman for the film and their replies to the points raised in the discussion.

News in Brief

Gas Appliances, Auchtermuchty.—Auchtermuchty Town Council has decided to install gas cookers and wash boilers in the Lochtybank housing scheme. The Clerk of the Council reported that electric appliances would cost £44 12s. 8d. per house against £27 10s. per house for gas appliances.

Flood Threat to Gasworks.—When a drain carrying surface water from the Upwood aerodrome district became blocked on May 6, several feet of flood water threatened the gasworks at Ramsey, Hunts., with the risk of an explosion had the water entered the retort house. The county fire service was called out and averted the danger by pumping.

Gas Prices, Orkney.—The price of gas is to be reduced in Orkney where, until now, consumers have been paying the highest rates in the country. The Scottish Gas Board has announced a new price of 10s. per 1,000 cu.ft. for Kirkwall consumers. This means a reduction of 2s. per 1,000 cu.ft., and for Stromness, 2s. 11d. per 1,000 cu.ft.

Lincoln Valuation.—A proposal by the East Midland Gas Board that the rateable value of the Lincoln gas undertaking should be reduced from £11,813 to £2,950 is to be opposed by the Rating Committee of Lincoln City Council. It has been pointed out the proposal would mean an annual loss in rates to the city of about £8,640.

Street Lighting Charges.—Pleasley parish councillors have reaffirmed their determination not to pay new charges announced by the East Midlands Gas Board for street lighting and have decided to send correspondence that has passed between the Council, the area board and the electricity board to Mr. H. Neal, M.P. for the Bolsover Division.

Condensates from Oxide Boxes

By B. RICHARDSON, F.R.I.C., M.Inst.Gas E., M.Inst.F.,
Northern Gas Board (Newcastle Division)

IN the following article it is proposed briefly to discuss the significance of the results obtained from a series of analyses carried out on the drainings from oxide purifiers operating under varying conditions. The drainings were taken from a number of works and from purifiers dealing with coke oven gas, retort house gas, and carburetted water gas.

Measurements of the quantity of these condensates made showed wide day-to-day variations, but it may be said that for manufactured retort house gas and coke oven gas the figures averaged 23 gal./mill. cu.ft., treated when taken out over a period of several weeks. This may be compared with the 20 to 40 gal./mill. quoted by L. G. Townsend in his comprehensive paper on oxide purification presented to the Manchester District Junior Association of Gas Engineers in January, 1949.

Typical Analysis

The box drainings examined ranged in colour from pale yellow to dark brown, the darker coloured samples usually being taken from purifiers operating on manufactured gas. Drainings from coke oven gas purifiers possessed a much lighter and more translucent aspect, and it was established that the degree of opacity of the samples depended largely upon the presence of a colloidal suspension of gum or resin, some of which was isolated and examined. This substance appeared to be almost wholly insoluble in benzene and toluene but was dissolved by acetone, so it seems likely that it consists principally of nitrogen-containing bodies resulting from the polymerisation of unsaturated hydrocarbons, and it may be closely akin to the vapour phase gums which at times give rise to trouble in our distribution systems.

Some typical analyses of condensates are set out in the accompanying table from which it will be realised how diversified are the characters of such liquids.

Examples of drainings obtained from boxes purifying works manufactured gas and crude coke oven gas are included. The samples represent the average of the drainings from all boxes in a particular line.

Gas treated	(A) Retort House Gas	(B) Retort House Gas	(C) Coke Oven Gas	(D) Coke Oven Gas
H_2S content of gas (Gr./100 cu.ft.)	450	480	450	460
NH_3 content of gas (Gr./100 cu.ft.)	10-15	4-8	0.5-1.0	0.5
Oxygen content of gas (% by volume)	1.4	1.3	1.2	1.3
pH of drainings ...	8.5	8.0	4.5	5.0
Analysis of drainings (Parts/100,000)				
Ammonia NH_3	4,522	523	51	34
Hydrocyanic acid (HCA)	15	Trace	20	6
Soluble iron as Fe_2O_3	56	118	320	436
Sulphocyanides as CNS	7,416	1,148	334	497
Sulphates as SO_3 ...	2,359	238	191	230
Thiosulphates as S_2O_3	850	434	75	168
Total sulphur ...	5,520	976	303	462
Total soluble salts ...	16,166	2,474	1,233	1,632
Phenols	15.7	—	8	—
Gum in colloidal suspension	5,520	13	111	158
Colour of drainings ...	Brown	Amber	Yellow	Yellow

Samples of the drainings from carburetted water gas oxide purifiers were shown to be relatively innocuous, containing on the average not more than 14 parts per 100,000 of dissolved solids, and only 1.3 parts of sulphur. The liquid was invariably colourless.

The soluble iron in all the drainings shown in the table was present in the ferrous state and when oxidised by the addition of a few drops of hydrogen peroxide or bromine water gave an immediate red coloration with the dissolved sulphocyanides.

The drainings from the coke oven gas purifiers were slightly acidic in character but those from retort house gas gave a distinct alkaline reaction.

The profound effect exerted by ammonia in gas entering the oxide purifiers may be realised if the composition and nature of the soluble constituents of samples A and B given in the foregoing table are examined for a moment. Sample A, for instance, derived from gas containing from 10 to 15 gr. of ammonia reveals an astonishingly high concentration of 16% bt. weight of soluble salts, the latter consisting almost entirely of ammonium sulphate, ammonium sulphocyanide, and ammonium thiosulphate. Calculation shows that in this particular instance the average daily loss of sulphur in the drainings is 138 lb., which represents no less than 13.4% of the total sulphur originally present in the gas in the form of hydrogen sulphide.

On the other hand, the drainings obtained from purifiers operating on what to all intents and purposes may be regarded as ammonia-free coke oven gas (columns C and D in the table) show a much greater proportion of ferrous salts and very much less sulphocyanide, sulphate and thiosulphate. Consequently the total weight of soluble salts present represents no more than 1.6% and accounts for a loss of only 0.2 to 0.3% of the recoverable sulphur.

The loss of iron in the shape of ferrous sulphate calculated in terms of Fe_2O_3 is equal to about 2 lb./mill. cu.ft. of coke oven gas treated, being of sufficient magnitude to negative suggestions that iron in these condensates and drainings does not originate from the purification oxide, but is a product of the corrosion of the boxes themselves by ammonium sulphocyanide.

Hydrocyanic Acid Removal

It is interesting to compare the degree of hydrocyanic acid removal effected in coke oven gas purifiers handling ammonia-free gas with that in purifiers treating retort house gas containing from 4 to 15 gr. of ammonia per 100 cu.ft.

The average of a number of tests recently undertaken by the writer to elucidate this point gave the following figures.

	Gr. HCN per 100 cu.ft. Inlet P'fiers	Outlet P'fiers	%HCN Removed
Coke oven gas ...	33.1	25.0	24.4
Retort house gas	38.7	7.7	80.0

In the case of the retort house gas containing 4 gr. or upwards of ammonia we may assume the reactions to follow these lines.

(a) Ammonium sulphide is formed as the result of interaction between ammonia and hydrogen sulphide in the presence of moisture.

$$2NH_3 + H_2S = (NH_4)_2S$$

(b) The ammonium sulphide combines with free sulphur in the oxide to yield ammonium polysulphide.

$$(NH_4)_2S + S = (NH_4)_2S_2$$

(c) The ammonium polysulphide reacts with hydrocyanic acid to give ammonium sulphocyanide and ammonium hydrosulphide.

$$(NH_4)_2S_2 + HCN = NH_4CNS + NH_4HS$$

The most favourable conditions for hydrocyanic acid removal, therefore, are those in which the maximum amount of sulphocyanide is produced. In the coke oven gas purifiers less hydrocyanic acid is retained by the oxide, but of this smaller quantity a much larger proportion is ultimately obtained as ferric ferrocyanide or prussian blue, which is commercially of more value than the sulphocyanide.

Efficient hydrocyanic acid removal accordingly would seem to be attended by a relatively high loss of sulphur from the

(*Continued at foot of p. 514*)

Low-Temperature Carbonisation

THE first full-scale low-temperature carbonisation plant in the United States is now under experimental operation. The plant is that of the Disco Company, a subsidiary of the Pittsburgh Consolidated Coal Company, built at McDonald, Pa., near Pittsburgh, at a cost of 3 mill. dollars. It has a capacity of more than 1,000 tons of coal a day, and is based on research dating from 1928, which has included the operation of three experimental retorts of full commercial size over a number of years.

The plant treats bituminous fines and the solid fuel produced consists of balls of lightly carbonised product which affords smokeless fuel for house-heating, and in other small stoves and furnaces. The liquid product of carbonisation is a tar which has been refined to produce tar acid oil, tar acids, creosote, fuel pitch, and pitch coke. The gas produced per ton of coal is 4,000 cu.ft. at 370 B.Th.U., used after removal of the crude liquid products for firing retorts.

The installation is sited near to one of the large coal washeries of the parent company. The cleaned fines are conveyed from the washery by belt to a stockpile which provides storage for a month's supply.

According to an account in *Chemical Engineering*, New York, the process proper begins with this wet coal and includes the following steps: pre-drying, 'roasting,' carbonising in retorts, cooling, and screening and unloading.

The drying equipment lowers the moisture content to the desired 2 to 3% in three flash dryers heated by the hot blue gas from a coal-fired furnace below. From cyclone collectors at the top of each dryer unit the dry coal is carried on belt conveyor to the carbonising plant.

A vital step in the process is the modification and control of coking characteristics of the coal by treatment which is called 'roasting.' This preheats the coal and partially oxidises it by exposure to controlled quantities of air in six-pass rectangular hearth roasters. The hearths are heated by circulating flue gas in heating ducts not in contact with coal. Rabbles move the coal the length of the roasters in continuous streams for six passes in alternate directions. In the last two passes some coal is recycled to maintain an exact uniformity in the quality and quantity of the feed from the roaster into the carbonising retort.

Air control is maintained manually in the heating ducts of the roasters so that coal reaching the last pass is correctly and uniformly prepared for retorting. The coal from the last pass is fed to the retort by a rotary-feed device at 600°F. The purpose of preheating and roasting is to control the excessive caking characteristics of the high-grade bituminous coal used. It is here that the company claims to have achieved a result which gives success where most other low-temperature coking systems have failed.

The retort proper is a rotating cylindrical $\frac{5}{8}$ in. steel shell approximately 9 ft. in diameter by 126 ft. long. It is mounted inside an insulated stationary steel cylinder. The inner shell, which is unlined, is mounted almost horizontally, but with a slight slope so that it may rotate like a typical cement or lime kiln. Heating is from the outside by high-speed flue gas in the annulus between the outer stationary shell and the revolving retort. The heating gas is retained at the two ends by rubbing strips attached to the outer shell and riding on the rotary shell to give suitable gas-tight closure.

The prepared coal drops directly from the roaster into a screw feed, which discharges at a point close to the upper end of the rotary shell. The coal is soon heated to the plastic temperature when the formation of lumps or balls begins. These balls roll around inside the shell working their way down to the lower discharge end. The gas generated passes out through the take-off at the upper (cooler) end of the retort and thence through a wash box to the primary grid cooler at each unit. There the tar condensing and liquor scrubbing are accomplished. The liquor for spray operation is recycled through a cooling tower. The gas is given a final scrubbing and is returned to the retort furnace for fuel as needed.

Process heating is with by-product gas burned in the retort-heating furnaces, one for each unit. Hot flue gas is recirculated by fan through the furnace which is situated under the discharge (hot) end of the retort. The maximum temperature in the heating space at this coke-discharge end is automatically held at 1,050°F.

The rate of throughput is wholly determined by the rate of feed. The retort is largely free space except where the several baffle rings give some measure of piling up of the balls at intervals.

As normally prepared the solid product contains 15 to 17% by weight of residual volatile matter. This percentage can be varied within limits from 14 to 20%. The new retorts were designed to process 150 tons of dry coal each per 24 hr. day. The yield of fuel is 75% of the weight of coal, thus ensuring 750 tons or more of marketable product from the seven retorts.

The by-product yield is from 13 to 15 gal. of dry tar per ton of coal. There is no recovery of light oil.

The solid product from the retorts goes to a rotary screen from which the oversize pieces pass through a roller crusher, thus limiting the size to about 6 in. The total stream of fuel is then roughly screened to three sizes. The largest size, about 2 to 6 in., is air-cooled by passing over an inclined cooling bed of the rocking-grate type. The middle size, from 1 to 2 in., is cooled by water sprays. The smallest size, under 1 in., is added to the cooled fuel and the total product is conveyed to the final screening and loading station where three sizes can be loaded into open top railway wagons. All the undersize is crushed to minus $\frac{1}{4}$ in. and stored in a silo-type bin. All the fines from this bin are added to the coal as the latter goes into the feed hoppers above the roasters. Major control of the size and structure of the ball product is achieved by variation in the percentage of this undersize fine breeze in the feed.

CONDENSATES — continued from p. 513.

boxes in the shape of soluble sulphocyanides, thiosulphates, and sulphates.

Sulphur loss is, moreover, speeded up under alkaline conditions by the addition of air or oxygen in excess of what is necessary to effect complete revivification *in situ*.

The extent to which the successive oxidation of ammonium sulphides to thiosulphates, sulphites, and sulphates may take place is well seen in the two samples A and B included in the table. Hitherto, in normal gasworks purification practice it has been generally conceded that the presence of a few grains of ammonia in the gas entering the purifiers is advisable if satisfactory operating conditions are to be maintained. Four grains per 100 cu.ft. is usually specified as being the required amount, but it is not known who originally suggested the figure. At any rate it has come to be regarded by the gas industry as more or less axiomatic and, indeed, carries as much authority as the famous maxim concerning profits being made in the retort house.

Nevertheless in the light of experimental evidence the writer believes that ammonia should be kept at as low a figure as possible in the gas entering the oxide purifiers. The more ammonia allowed to go forward to the boxes the more soluble ammonium sulphur salts will be formed which will subsequently be dissolved out of the oxide and lost in the drainings.

Investigators have frequently drawn attention to the discrepancies between the amounts of sulphur actually recovered in the elemental form by the purifier oxide and the sulphur theoretically recoverable from the gas. Here, then, is one explanation why these differences should exist and why ammonia extraction at the scrubbers should be as thorough as possible.

The writer's experience is that it is not more difficult to remove hydrogen sulphide from bought coke oven gas initially containing one grain or under of ammonia per 100 cu.ft., than from manufactured gas with 4 gr. of ammonia. The drainings, from coke oven gas purifiers, however, with a pH round about 4.5 contain less soluble ammonium salts but more soluble iron salts. The quantity of the latter has sometimes been known to reach as high a figure as 3.8 lb./mill. cu.ft. of gas purified and is likely to increase with decreasing pH of the oxide.

In this matter it would seem that we fall, as it were, between Scylla and Charybdis, for if the purifiers are worked with ammonia absent from the gas a loss of iron oxide and sulphur occurs in the shape of ferrous sulphate. On the other hand, unless extreme caution is exercised in the use of ammonia and every endeavour is made to ensure that the scrubbers are working efficiently, very much more valuable sulphur may be dissipated down the drains as soluble ammonium salts. Of the two evils this is undoubtedly the greater.

East Midlands Area Staff Conference

Achievement and Prospect

A VERY successful area staff conference attended by officers of area, divisional, sub-divisional, and district level in the area of the East Midlands Gas Board was held at Skegness on May 11 and 12. All the sessions were presided over by Mr. H. F. H. Jones, M.B.E., J.P., Chairman of the Board, supported by Mr. Sydney Smith, Deputy Chairman, and other members of the Board. Four papers were presented: 'Mainlaying,' by Mr. A. F. Knowles, Assistant Divisional Mains Engineer, Sheffield and Rotherham Division; 'Modern District Organisation,' by Mr. P. J. Bowler, Sales and Service Superintendent, Derby undertaking; 'Organisation,' by Mr. E. H. Harman, General Manager, Sheffield and Rotherham Division; and 'Some Problems on Reorganising a Small Works,' by Mr. L. B. Chapman, Local Manager of the Skegness undertaking. A whole afternoon session was devoted to 'Question Time.'

The **Chairman,** in opening the conference, briefly reviewed the achievements of the first year of nationalisation. There had been many questionnaires, some comprehensive and difficult to complete, but so far as he knew they had not now, as they had a year ago, a pile of questionnaires waiting to be sent out but which were being programmed to keep them within the physical capacity of undertakings.

Development of Team Spirit

The principal reason for holding the conference was to give managers of undertakings and staffs at area board, divisions, and sub-divisions the chance of meeting and talking. They hoped to develop even more of the team spirit and had tried to make the conference useful by providing short papers of general interest.

With regard to the future their activities fell under three headings: (1) Improvement of efficiency of existing works and distribution systems; (2) linking up, where economic and practicable, to enable works in which costs were high to be closed down, provided that high costs were not due simply to bad operation but to small size, high local costs which could not be avoided, unsuitable site, and so on; and (3) development of sales and service. In preparing to meet keen competition and consolidate their position they must give a really good service to consumers, and gas of reasonably constant quality and pressure used in efficient appliances. Their organisation for the maintenance of appliances must be quick in action and effective in operation; they hoped to encourage maintenance contracts to cover the inspection and maintenance of various types of appliance. They must keep their business constantly before the public by contact with local authorities, for which they were largely dependent on the local manager; by contact with consumers, for which they relied largely on their meter reading, fitting, and showroom staffs; and on advertising, so far as such advertising would bring results of lasting benefit.

Before nationalisation anyone in a responsible position would have regarded it as his duty to watch local developments, to take notice of suitable premises which might be available for sale and which would be suitable for showrooms, stores, &c., and generally bring such matters to the notice of his board or committee. 'Please do not forget,' concluded Mr. Jones, 'that you are the eyes and ears of the board and unless you continue to exercise the same initiative and vigilance as in the past, in the first instance the board will suffer and ultimately the gas consumer will not receive the standard of service to which he is entitled.'

Mr. **Sydney Smith,** Deputy Chairman, opened the second day's proceedings and spoke on technical efficiency on the works, improvement of distribution systems, safety, education and welfare, and industrial relations. Within the East Midlands area, he said, coal carbonised annually amounted to about 1½ mill. tons and, on the basis of an average of 70 therms per ton, an improvement in gas-making efficiency to the extent of one therm per ton would effect a saving exceeding 20,000 tons of coal a year.

Systematic Methods

Similarly an improvement in the efficiency of water gas production to effect an all-round economy of 5% in the coke per 1,000 cu.ft. of gas made would mean a saving in the region of 4,000 tons of coke per annum. Other equally obvious possibilities would be apparent. Spasmodic effort would not produce results; and only by systematic methods could a high standard of technical efficiency be obtained and maintained.

The standard and extent of technical control were dependent on the staff available, and as a means of assisting the smaller works one of their divisions had equipped a mobile laboratory which was proving extremely useful in operation. The idea might be extended with advantage. Even in the smallest works much could be done by giving attention to the fundamental factors which were common knowledge. Recently he stood in a retort house and observed a 6 in.

Photograph by Wrate, Skegness.

The Chairman, Mr. H. F. H. Jones (sixth from right in front row) and the Deputy Chairman, Mr. Sydney Smith (on his right) with area, divisional, sub-divisional, and local officers at the Skegness conference.

ascension pipe of a horizontal retort being augered with a length of 1 in. tube. No other auger was to be seen in that retort house, and the general condition of the works was compatible with the standard of retort house control. On the other hand many works were well run and well maintained and showed distinct evidence of pride in upkeep.

It had been stated that the area board was requiring a much higher standard of efficiency than the previous owners. That might be true in some cases, but it was equally true to say that although the board would continue to expect a certain level of efficiency this should not be difficult to attain by ordinary accepted standards. The board would never make unreasonable demands in this or any other direction.

On the question of improvement of distribution systems it had become increasingly obvious that if the board was to increase sales of gas and give satisfactory service to consumers pressures would need to be improved in many parts of the area. Although a good deal of work in this connection had been carried out since vesting day, it must be some years before they would be in a position to say that their distribution systems were satisfactory.

Although potential consumers on new housing estates must have supplies made available it was the existing consumer who provided the board's immediate revenue and it was essential, therefore, that to maintain and retain existing revenues satisfactory supplies must be provided throughout the area at the earliest possible date.

Paradoxical though it seemed, it was a strange fact that some consumers were reluctant to complain. Perhaps they were content to suffer in silence, or they may never have known anything better, but it was not a bad principle to encourage legitimate complaints, because effecting a remedy and rendering a service almost invariably led to a satisfied consumer, and satisfied consumers were the board's livelihood.

Welfare Facilities

It was the responsibility of every area board to promote the welfare, health, and safety of persons in their employ. Small effort was required to become 'safety conscious.' It was largely a matter of observation coupled with a realisation of the fitness of things and a determination to take every possible step to forestall any circumstance which might conceivably give rise to an accident. The question of the provision of welfare facilities was under consideration at the present time and it was hoped that definite information would be available in the near future.

The board had approved in draft an education scheme designed to give all employees an opportunity to follow courses of study applicable to the requirements of their particular employment and the needs of the individual. It was the wish of the board that assistance should be given to all employees to extend their knowledge and to provide a means whereby they could fit themselves for positions of increased responsibility. Consultation would have to take place with appropriate organisations, but it was hoped that the scheme would be finally approved and put into operation in the near future.

Mr. Smith concluded with a review of the consultative machinery set up to deal with industrial relations and said it would be realised that much of the success of the board depended on the relationships which existed between management and employees of all grades. Just as a sub-divisional manager could ease the burden of his divisional general manager by willing co-operation and ready assistance, so could the local manager contribute towards the success of his sub-division, and so on up and down the scale. The board was anxious to develop a humanistic organisation and looked to all levels of management and staff to work to that end.

At the close of the conference the **Chairman** expressed thanks to Mr. A. Gwynne Davies, Secretary of the board, and Mr. N. Turner, his deputy, for carrying out the detailed arrangements for the conference, and the thanks of the staff were expressed to the Chairman and members of the board by Mr. **J. Corrigan** (Loughborough).

Tribute to the Chairman

The business sessions were followed by a dinner and dance, presided over by Mr. H. F. H. Jones and attended by a number of visitors and ladies.

Mr. **Alfred Robens,** Parliamentary Secretary, Ministry of Fuel and Power, proposing the toast of the East Midlands Gas Board, said he regarded the area staff conference, the first of its kind in England, as a great tribute to the Chairman of the board. The idea of coming together in that way and talking over the questions which naturally arose in the course of their everyday work, and bringing the staff into closer contact with the board, was extremely important. He had a tender spot for the gas industry because while he was not in the industry he had had a lot to do with its set-up. He felt that the gas industry had the best nationalisation Act of any for which he had been responsible. He liked particularly the fact that they had in their areas autonomous units able to get about their job without reference to anybody else. He hoped that state of affairs would lead, as he was sure it would, to intense competition between the various industries. That would be all to the good. He pictured a plain van coming to the back door of the house to deliver a new gas cooker, while the old electric cooker was being pushed out of the front door, and added: 'All power to your elbow. Let the merry game go on and let the consumer benefit from real competition between the industries.'

He realised that the gas industry had many problems. It would take a long time to put integration efficiently into operation; nevertheless, he was certain that the policy of integration would be carried through with success. He had met no body of people who had impressed him more than those in the gas industry. They lived above politics, regarding the gas industry as the first and primary call upon their services. They had to deal with the problem of effecting integration throughout the East Midlands area, in which a very large proportion of their gas was derived from coke ovens. That in itself was an advantage, but it meant that there must be complete co-operation between those who were at the moment operating the coke ovens and those who were making use of their product. Co-operation of that kind called for sound leadership and administration.

The coal industry and the gas industry must put service to the public above all other considerations. They had in the new set-up great opportunities for enormous development. He did not think the gas industry had sung its praises sufficiently.

Consumer Service

The chairman of another area board had told him recently that he had been able to carry out a certain scheme for his area involving a cost of something like £1,250,000 and resulting in a saving of some £150,000. In the final analysis Mrs. Housewife did not care in the least about how much an area board was able to save; she was concerned only with what she got in her home and she judged the area board and its success or failure by the service she received and the quality and price of the product. If he might as an outsider venture an opinion he would say that of those three factors the most important was service to the consumer. If that service was good, Mrs. Housewife would say the gas industry was right; if the service was bad, no matter what they might save they would get no credit whatever for it. Much the same applied to the coal industry. It mattered little to Mrs. Housewife that the industry had been able to export 20 mill. tons of coal in a year, except in so far as it had been the means of getting food and raw materials into this country. The housewife's real concern was that her coal had too much slate in it, and it was too dear; she did not like the Coal Board's new motto: 'It's never too slate to send.'

The **Chairman,** responding to the toast, said there was nothing more extraordinary about working for the board of a nationalised industry than in working for any other large employer. As to the relationship between the board and its staff, they had a delicate balance to hold. On the one hand they must be good employers—as good as the best that could be found in private business—but there must be no suggestion that the people working in nationalised industries were granted terms and conditions of employment which were markedly out of relation to the best business practice. Not only must they give customers value for money, but they must be able to see that they were getting it.

Since vesting date the board's employees had in many cases worked harder than ever before, and they had done so willingly, out of loyalty to the industry and wishing to ensure its success. In some quarters there was a tendency to criticise nationalised industries for competing with each other and, in their own case, for spending money on advertising in competition with solid fuel and electricity. Their primary aim was to enable the public to make themselves more comfortable in their homes.

Mr. **Sydney Smith** proposed the toast of the visitors, for whom Major-General Sir **Noel G. Holmes,** K.B.E., C.B., M.C., Chairman of the North Eastern Division of the National Coal Board, responded.

Eastern Consultative Council

THE fifth meeting of the Eastern Gas Consultative Council was held at the Connaught Rooms, Great Queen Street, Kingsway, London, W.C.2 on Monday, May 15, Alderman R. Turner, Chairman, presiding.

The **Chairman** reported that the Sheringham Urban District Council still believed that the charge for gas in Sheringham should not be greater than the charge in Cromer since the two undertakings were under one control. The board have stated that they were fully alive to the advantages of obtaining some measure of uniformity in its gas price structure and as soon as circumstances permit would give this matter attention. The price of gas of the former Sheringham undertaking had not been varied since vesting date, and did not appear to the board to be unduly high having regard to its statutory obligation and the costs incurred by the board.

The estimate of the increased cost of coal and railway rates to be borne by the Eastern Gas Board was placed before the meeting; this showed that as the result of the adjustment of coal pit head prices which became operative from May 30, 1949, the board had been called upon to pay a further £105,014, no provision being made in the present charge for gas. The increase of 16⅔% in the railway rates on coal, coke, and gas oil would cost the board £192,758. This increased charge for railway rates added an average of 2s. 7d. per ton to the price of coal and this together with the increased pit head prices of a year ago was equivalent to 0.6d. on every therm.

The question of deposits paid by consumers where gas is supplied through an ordinary meter had been the subject of correspondence. The board informed the council that these would be returned to the consumers after three years, where prompt payment had been made.

A complaint had been received from R. & W. Paul, Ltd., Ipswich, regarding dust from the Ipswich works. The board had replied that steps were being taken to overcome this difficulty.

Our photograph shows the stand of the Edinburgh District at the Modern Homes and Health Exhibition in the Waverley Market, Edinburgh, last month. The stand incorporated two model kitchens, live water heating, gas and coke fire displays and special features such as large scale cooking equipment, central heating boilers and a greenhouse heater.

It was further reported that the board had recently completed the laying of high and low pressure mains between Luton and Markyate. These would enable the board to close down the Markyate gasworks and to supply the surrounding villages of Caddington, Slip End and Woodside. As from August 1, gas sold in Markyate would be sold on a thermal basis instead of the present volume basis and the calorific value of the gas to be supplied would be 490 B.Th.U. per cu.ft.

On the question of joint reading of gas and electricity meters the board reported that the divisional managers felt there might be some value in this suggestion in the rural areas, and the necessary arrangements for joint readings were likely to be made if found to be economically and administratively sound.

A draft report on the exercise and performance by the council of their functions during the year was received and approved for submission to the board.

This stand of Ascot Gas Water Heaters, Ltd., at the Copenhagen International and Industrial Fair was entirely prefabricated in England, transported by air in sections to Copenhagen, and erected in a matter of a few hours.

Coke Sales Circle

The annual meeting of the London and Counties Coke Sales Circle was held on May 11 at Gas Industry House, the Chairman, Mr. F. S. Evans (South Eastern Gas Board), presiding.

The **Chairman** said that in addition to the election of officers, the meeting had also to consider proposed alterations to the rules of the Circle. These included provision for the acceptance of associate members and a proposal that the retiring Chairman should become a member of the management committee for one year.

The **Secretary,** Mr. J. Meyrick, gave a short report on the year's work. Five meetings had been held, and the total membership of the Circle had increased from 276 in May, 1949, to a present total of 294. There had been 28 new members, 10 resignations of membership, and six applications were in hand.

On the proposition of the Chairman, Sir John Charrington (London Coke Contractors' Association) was unanimously re-elected President. Mr. W. E. Daniel (Ashby & Co.) was elected Chairman. Dr. F. J. Eaton (North Thames Gas Board) was elected as Vice-Chairman, and Mr. J. Meyrick, who has been Acting Secretary since the death of Mr. F. S. Haddock, was elected Secretary. According to the constitution, four members were elected to the Management Committee to replace a third of the committee who have to retire annually. The names were: L. Curry (Rickett, Cockerell & Co., Ltd.), R. S. Hopper, W. J. Carlin (South Eastern Gas Board), and G. G. Champion (North Thames Gas Board).

Mr. **W. E. Daniel** then took the Chair, and on his proposition the proposed amendments to the rules were accepted. Mr. Daniel said that the work of the retiring Chairman as representative of the distributing side of the Producers' Technical Committee had been monumental. In such problems as ash control and low calorific value, Mr. Evans had played a most important part. As salesmen they greatly appreciated the work he had done.

This attractive stand of Geo. Bray & Co., Ltd., at the British Industries Fair, which ended last week, displayed a wide range of the Company's well-known flat flame and cylindrical jet burners.

MANCHESTER JUNIORS

A VISIT by the Manchester District Junior Association of Gas Engineers to the Linacre works of the Liverpool gas undertaking of the North Western Gas Board, where much new development is now in progress, took place on May 6. After the tour the members of the Association, at the invitation of the board (Liverpool undertaking) were entertained at tea in the showrooms, Radiant House, Mr. R. J. Bradshaw (President of the Association) presiding.

Mr. W. P. Smith (Rochdale) proposed that a vote of thanks to the Liverpool undertaking, coupled with the names of Colonel W. M. Carr, O.B.E., Chairman of the board, the members of the board, and Mr. C. H. Leach, General Manager of the Liverpool Group of gas undertakings, and his staff.

Mr. J. Henebery (St. Helens), in seconding the vote, thought that to say the Linacre works had undergone much development could only be regarded as an under-statement; the progress which had been made was little short of the miraculous.

Mr. C. H. Leach responded. He remarked that he thought the seconder of the vote had spoken of the development which had taken place at Linacre as something miraculous, but perhaps that was an over-statement, though certainly very much had been accomplished. Actually, the Garston works were really regarded as the show plant, although they had been heavily damaged during the war. They all looked to junior associations like the Manchester District to provide the future personnel of the industry, and it was encouraging to notice the great interest which had been shown during the inspection of the works. The annual meeting of the association took place in the demonstration theatre at Radiant House, when the following were elected officers of the association for the 1950-51 Session:

President: D. M. Thompson (Wigan).

Senior Vice-President: L. G. Townsend (Liverpool).

Junior Vice-President: W. P. Smith (Rochdale).

Hon. Treasurer: Mr. H. Partington (Rochdale).

Council: A. K. Howell (Chief Chemist, Rochdale Road Gasworks, Manchester), T. Nicklin (Production Engineer, N.W.G.B.), J. Oates (Industrial Representative, Oldham), N. R. Bowman (Senior Technical Assistant, Stretford gasworks), J. Hepworth (Distribution Engineer, Salford undertaking), N. Olsen (Works Chemist, Athol Street Works, Liverpool).

Two further members of the Council, not due for election during the present year: A. H. Barrington (Stretford), and J. R. Ward (Liverpool).

Hon. Secretary: T. W. Pickthall (Hyde, Cheshire).

A paper, 'Carbonisation in Continuous Vertical Retorts,' was then presented by Mr. J. M. Brown, B.SC., Engineer, Saltley gasworks, Birmingham. This will be dealt with subsequently in the *Journal*.

Mr. T. Nicklin (N.W.G.B.) proposed a vote of thanks to Mr. Brown for his informative paper, and Mr. J. F. Smith (Leyland) seconded.

East Midlands Alteration.—The Woodhall Spa and Horncastle undertakings in the North Lincolnshire Sub-Division of the East Midlands Gas Board are to be transferred to the City of Lincoln Sub-Division as from May 27.

Visit to R. & A. Main, Ltd.—Four hundred representatives from the districts and divisions of the North Thames Gas Board have visited R. & A. Main's works at Edmonton to see the new white cooker on the assembly line. They were divided into parties of 100 each, visits being made on May 9, 10, 16, and 17, when the whole process was seen from start to finish. The new cooker is the specially designed 'London' cooker.

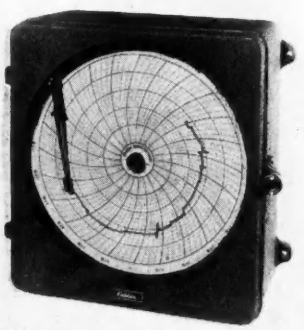
New Edinburgh Service

A new service for gas consumers in the Edinburgh district was inaugurated on May 13. Three miles of 24-in. gas main have been completed from the gasholder station at Holyrood Road to Little France at a cost of £50,000. The immediate benefit of this scheme will be felt in the Gilmerton and Liberton areas where there has been considerable city housing development, and the main will be extended at a later date to provide additional supplies of gas in the Lothians.

The next stage in the scheme will be the physical link-up between the Edinburgh gas supply system and the mains of the area previously serviced by the Loanhead and District Gas Company which is now part of the Edinburgh Group of the Scottish Gas Board.

Electrical Graph Recorder

A general purpose industrial electrical graph recorder suitable for wide application in all branches of industry has been manufactured by Fielden (Electronics), Ltd., Manchester. This instrument, the circular chart type, Model



R.F.1, operates on the Servograph principle and consumes no more power than the equivalent indicating meter. It is suitable for direct connection to thermocouples, pH indicators, CO_2 indicators, tachometers, &c., and is equally suitable for general electrical use as an ammeter or voltmeter, in which capacity it provides a robust, accurate, trouble-free recorder, which will respond to the smallest increment. An accuracy better than plus or minus 1% error over the whole scale, complying with B.S.S. meter grade 1 instruments, is claimed. The chart is driven by a self-starting synchronous clock motor which will maintain correct time on frequency controlled mains. Three speeds are in production, one hour, 12 hours, and 24 hours, but any other speed can be supplied on request. The instrument is supplied in a cast dustproof aluminium case equipped with brackets for wall mounting.

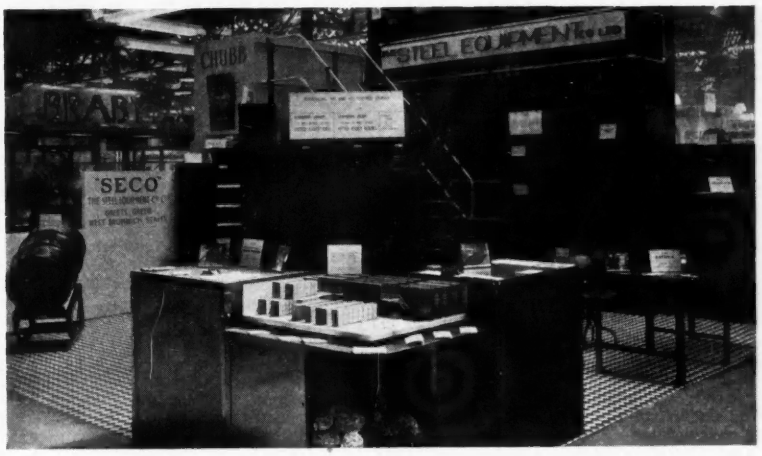
The **National Benzole Co., Ltd.,** has had an extra telephone line installed at their Leicester depôt. The telephone numbers are now Leicester 58351 and 59446.

Trade News

A new booklet (No. 234) describing the 'Noflote' pump controls has been published by **Evershed and Vignoles, Ltd.,** Acton Lane Works, Chiswick, London, W.4. The publication contains complete details of the new sensitive pattern relay units used for operation in connection with relatively clean water, and includes a description of the standard pattern electrodes used for drainage and sewage purposes.

The **Quasi-Arc Co., Ltd.,** Bilston, Staffs., has developed two new electrode holders, primarily intended for sheet metal welding. These holders, which are of the plunger type, are specially designed to permit easy and neat manipulation of the light gauge electrodes used for this type of work. Electrodes may be gripped in either of two positions, thus making the holders satisfactory for positional as well as downhand welding. Two sizes are supplied; the smaller type, EH.50, weighs 5¼ oz. and is designed for welding with 16 or 14 s.w.g. electrodes at currents up to 50 amp. The larger types, EH.150, weighs 12¾ oz. and is intended for use with 16 to 10 s.w.g. electrodes, at welding currents up to 150 amp.

Grovewell, Ltd., 656, Forest Road, London, E.17, has released details of the new 'Puck Flexa' cubes and refrigerator tray, which, it is claimed, incorporate considerable improvements and facilitate the job of making ice cubes, &c. The cubes are individual plastic moulds, non-toxic and completely odourless, available in two sizes, standard and cocktail. Their flexibility enables ice cubes to be ejected easily and intact immediately they are taken from the refrigerator. The tray, which is used in conjunction with cubes, has been designed to overcome many difficulties experienced with the normal refrigerator tray. An important development is that it will never freeze to the ice chamber. For this purpose it is made of aluminium and mounted on two narrow slides which make only knife-edge contact with the lower surface of the ice chamber.



The comprehensive character of the products of the Steel Engineering Co., Ltd., is illustrated by this photograph of the Company's display at the B.I.F.

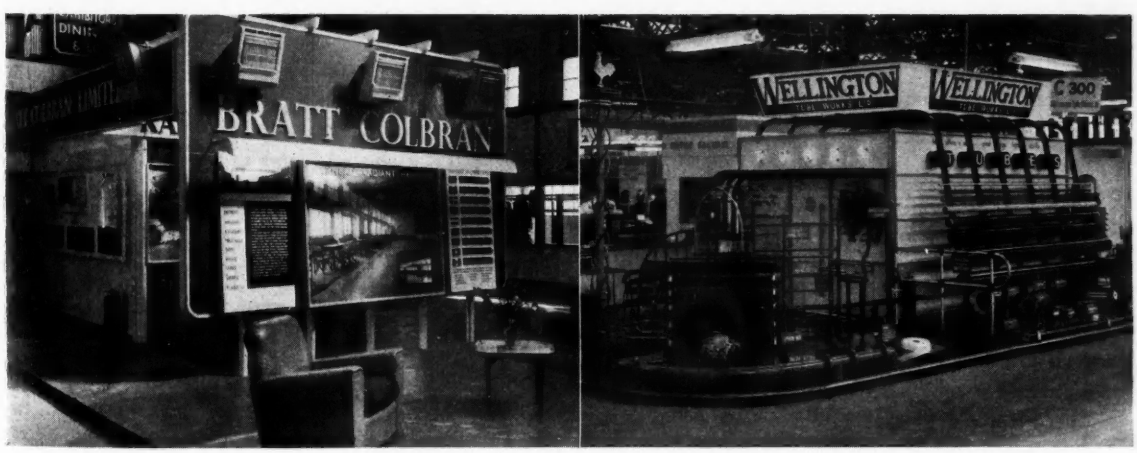
Gas Chambers & Coke Ovens, Ltd., of Artillery House, Westminster, S.W.1, will shortly be removing to new offices. As from June 1 their address will be: Chandos House, Buckingham Gate, London, S.W.1. Telephone: Abbey 6912 (3 lines); Telegraphic Address: Chambroven, Sowest.

Radiant Heating, Ltd., Radiant Works, Barnsbury Park, London, N.1, has published two new industrial leaflets. The first describes the 'Radiant' high intensity, infra-red, conveyor drying oven, which was on display at the British Industries Fair (*Journal*, May 17, pp. 448 and 449). The other gives details of four types of combustor units, together with performance data.

We have received from **British Jeffrey-Diamond, Ltd.,** Stennard Works, Wakefield, a leaflet on a new metal turnings crusher. This machine will reduce practically all classes of metal turnings from tangled masses into short chips. A consequent reduction in volume, varying between 3 to 1 and 8 to 1, facilitates handling by shovel or conveyor and permits more compact storage.

Imperial Continental Gas Association

The board of the Imperial Continental Gas Association has recommended payment of an Ordinary dividend of 7½% (actual), less tax, on the £5,600,000 Capital Stock on July 15, to proprietors registered at the closing of the transfer books on June 23. French claims against the British Government for reciprocal treatment in respect of French interests in British nationalised industries have unexpectedly delayed the settlement of the Association's claim against the French Government. Profit, after all charges, including taxation, for the year ended March 31 was £233,951, against £231,921 for the previous year. Provision has had to be made in Belgium for the heavy loss of the Cokeries du Brabant during 1949 with the result that although dividends and interest from investments in subsidiary and allied companies were maintained, the aggregate profits from which they derived were lower than in the previous year.



Two more stands at the B.I.F. The 'live' overhead radiant heaters in the Bratt Colbran display are suspended over an enlarged photograph of a typical installation. Wellington Tube Works, Ltd., exhibited a considerable range of tubes, tubulars and fittings, together with Weldex heaters and examples of fabricated flange work for pressure purposes.

COMPANY MEETING

Parkinson & Cowan, Ltd.

Sir George Jessel's Address: Continued Progress

THE Fiftieth Annual General Meeting of Parkinson and Cowan, Ltd., was held in London on May 19. Sir George Jessel, BT., M.C., the Chairman, in the course of his address, said :—

This is the Fiftieth Annual General Meeting of the Company and consequently an occasion when we might feel a modest pride in the progress made during the 130 years of our existence, and particularly during the last half century, when as a public company our business has extended in size and technology so far beyond our founders' conception.

The summary of our year's operations shows that we earned a consolidated gross profit of £308,673 (£299,143 last year). After deducting depreciation, taxation, and all other charges, our consolidated net profit is £80,307 (£94,186 last year).

Your Directors recommend that we repeat last year's Ordinary dividend at the rate of 7%, and, after allowing for 7% Cumulative Preference dividend, already paid, there is a surplus of £33,730 to be retained by the group.

Once again I have to draw your attention to an increased provision for income tax and profits tax at £96,121 (£85,538 last year), which more than absorbed our increased gross profit. We have also provided slightly larger sums for depreciation at £85,787, and we have applied £13,000 to deferred repairs (£13,789 last year).

Our fixed assets are higher at £542,228 (£521,510 last year). During the year we purchased £96,587 worth of new plant and equipment. Our stocks are a little up at £826,732 and our total resources in cash and tax reserve certificates are substantially up at £250,556 (£149,410 last year).

Current assets exceed all liabilities by nearly a million pounds and with the addition of the value of fixed assets the net assets stand at more than 1½ million pounds, including nothing for goodwill. This covers the issued Preference stock and the balance represents 28s. 4d. per £1 of Ordinary stock. The Ordinary dividend of 7% thus represents (other than Preference capital) only about 5% on the capital employed.

Survey of Group Operations

You will see that for a Company of our size we have an unusually wide diversity of interest. We believe this diversity to be a most desirable element in commercial stability but it brings with it problems of its own.

Our gas cookers, particularly the famous 'Renown,' continue very high in public esteem, and we have every reason to hope that new products which we shall be introducing in this field will still further enhance our reputation.

The demand for meters of all types has been good, although oversea markets have become intensely competitive. There are very few companies in the world which produce, as we do, gas, electricity, and water meters. I think we can claim that in all three fields our products are of very advanced design, and in many cases incorporate techniques which are ahead of competitive practice.

Our leather business enjoyed a satisfactory year and we continue to occupy a premier position in the fields we serve.

The market for gas water heaters, although slightly improved, has continued to be smitten by a savage purchase tax, and the national output of this appliance is far below pre-war level.

Our business in precision components for the instrument trade is making steady progress and we number among our customers many world famous makers of scientific equipment.

We continue to make great efforts in the exports field. Executives of the company are constantly visiting oversea markets and we are maintaining our share of the business available.

The Future

We are planning to spend more than £200,000 during the next two years on plant and on improvements to buildings and services. We are continuing our policy of devoting much time and money to the recruitment and training of young engineers, for we believe that the future of our company will be largely governed by our success in the selection and training of the next generation of executives and technicians. We are steadily extending the range of our products and are entering some new fields of manufacture.

The level of business at the beginning of this year was generally similar to 1949. Unless there is any drastic curtailment of expenditure by public authorities we have reason to expect a satisfactory year ahead of us.

Directorate

Mr. D. M. Henshaw did not seek re-election owing to other heavy responsibilities, and tribute was paid to his valuable services since he joined the board in 1935. During the year Mr. Edward C. Woodall, O.B.E., and Mr. Wilfrid H. Dimsdale, M.A., had been appointed directors and were confirmed in office.

Fitting reference was made to the late Mr. W. W. Parkinson, who, when he retired in 1946, had been associated for 57 years with the management of the Group.

The Chairman concluded with thanks to the managing director (Mr. H. P. Barker) and to the staff and workpeople.

The report and accounts were adopted.

MECHANICAL AIDS

'A steady uninterrupted flow of materials to and from each workman, will, on average, raise productivity by at least 15%, using existing productive machine equipment.' This is the verdict of the team of British specialists who have been examining United States methods of handling materials in industry and the use of mechanical aids. The unanimous report, published last Friday by the Anglo-American Council on Productivity, sets out the advantages that are being secured in factories in the U.S. as a result of improved materials handling. These include reduced indirect labour costs, increased capacity of existing buildings, increased volume of turnover, reduced volume of work in progress, and lower transport costs. Three major recommendations are made. First, directors, managers, architects and engineers should study the best materials handling practice in their own and other industries. Individual companies should survey their handling arrangements and determine the handling costs of sample components on each operation, rather than treat them collectively as an on-cost of production. A positive lead should be given by the engineering institutions, management and trade associations, the T.U.C., the Federation of British Industries, and the British Employers' Federation.

In not a single instance did the team find in America serious opposition to the introduction of new methods of materials handling or mechanical aids. They say that a simple wage structure, the rate for the job, shorter working hours, social security provision by the employers, all play a part in obtaining the ready acceptance and successful operation of new productive methods which lay the foundation for improved conditions.

LIQUID METHANE AS MOTOR FUEL

A comprehensive programme of work on the development of liquid methane as a motor fuel, which was started in the Department of Chemical Engineering and Applied Chemistry, Imperial College, is described in a paper by M. Pearce, PH.D., A.M.I.MECH.E., published by the Institution of Mechanical Engineers. The paper reviews some of the work concerned with the actual utilisation of the vehicle. The factors affecting power output and fuel economy are discussed, and engine test results obtained are presented. Work on the development of a suitable vacuum-insulated fuel tank is described with particular reference to 'neck losses.' Other items of interest include an account of the vehicle fuel system and its components as finally developed, and the results of long-distance trials of a motor 'bus with the normal and a higher compression ratio. A disadvantage of liquid methane with the fuel system used so far is the loss of fuel by evaporation; the paper ends with a description of fuel systems which enable this loss to be virtually eliminated.